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on plate No. 2099 listed by Gordon in Table 73 on page 195 of Vol. 3 of the Publications of the Allegheny Observatory.

It is hoped that it will be possible to follow this very interesting star every few years to see if any systematic changes take place in the elements of its orbit and also to see if any changes occur in the character of the K-line.

I wish here to express again my appreciation of the kindness shown me by Dr. Plaskett and all the members of the staff of the Dominion Astrophysical Observatory for the assistance given me in prosecuting the work on this binary.

S. L. Boothroyd.

Univ. of Washington,
Seattle, Feb. 1, 1921.

The Silicon Line λ3906 in the Electric Furnace Spectrum

The occurrence of the silicon line λ3905.7 in certain types of stellar spectra made it desirable to examine this line at various temperatures of the electric furnace. A set of spectrograms was accordingly made with silicon metal in the vacuum furnace at temperatures ranging from 1700° to 2500° C for the emission spectrum, and 2400° to 2650° C for the absorption spectrum. The incandescent background for the latter was obtained by placing a graphite plug in the hottest portion of the tube.

With the open tube, a temperature of about 2000° C. was found necessary to produce the line. At higher temperatures it strengthened rapidly, but remained narrow with no apparent tendency to reverse. With a plug in the tube, the line was just visible in absorption at 2400°. This agrees with the initial appearance in emission at 2000°, since in this region of the spectrum it has been shown that the plug temperature must be about 400° higher than the temperature producing the same spectrum in emission. At 2650° the absorption line was fairly strong, but narrow.

No other silicon lines were given by the furnace in this region, but a gauge of the response of λ3906 to temperature is obtained by comparing it with the neighboring iron lines, due to impurities in the silicon. The melting point of silicon is 100° below that of iron, and both metals form carbides in the graphite tube. At 2000°, however, when λ3906 just appears, the whole low-temperature iron spectrum is well developed, and the Class III lines, belonging to the high-temperature group, are becoming distinct. λ3906 should therefore be placed in Class III, and the fact that Eberhard and others have found it stronger in the arc than in the spark bears out the similarity of behavior to a large number of prominent iron lines, examples being λλ4181.9, 4198.5, 4199.3, 4227.6, 4233.8, 4236.1, 4260.6 and the group of strong lines near λ4900.

The characteristics of λ3906 of silicon, as of these iron lines, are thus first appearance at a temperature above that required for the low-temperature lines, rapid strengthening at higher temperatures and great intensity in the arc. It is therefore a high temperature line of the arc group, not showing the response to high electrical excitation which characterizes the enhanced lines.

ARTHUR S. KING.

THE SPECTRUM OF *o* CETI NEAR MINIMUM OF LIGHT

Attention was called by us last year to some remarkable changes in the spectrum of *o Ceti* as the star approached its minimum. Recent observations show that these changes have repeated themselves during the corresponding phases of the recent minimum. In addition they show some interesting features not observed previously.

Using the average interval from maximum to minimum of 217 days, the computed minimum fell on February 2. Photographs have been secured as follows with the 100-inch telescope:

NO. OF PLATE	DATE	DAYS FROM MINIMUM
C 760	1920 Nov. 20	−74
766	Nov. 21	−73
801	Nov. 29	−65
847	1921 Jan. 4	−29
859	Jan. 21	−12
861	Jan. 24	− 9
867	Jan. 29	− 4
874	Feb. 15	+13
878	Feb. 17	+15

The 18-inch camera was used for all the exposures except the last three, when the 7-inch camera was used on account of the limited time available.

The outstanding features of the spectrum when compared with that characteristic of the star nearer maximum of light are, in order of time of occurrence: first, the appearance of diffuse components on the red side of the normal bright lines of hydrogen; second, a marked continuous change in the relative intensities of the hydrogen